AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) A computer system ~~reconfigurable cache memory~~ comprising:

　　a cache ~~programmable~~ memory ~~unit~~;

　　a functional unit in communication with the cache ~~programmable~~ memory ~~unit~~, wherein the functional unit executes applications using the cache ~~programmable~~ memory ~~unit~~; and

　　a reconfiguration module for determining an optimal configuration of the cache memory for a particular application and programming the cache ~~programmable~~ memory ~~unit~~ to the optimal configuration.

2. (Currently Amended) The computer system ~~reconfigurable cache memory~~ of claim 1, wherein the cache ~~programmable~~ memory ~~unit~~ is a field-programmable gate array.

3. (Currently Amended) The computer system ~~reconfigurable cache memory~~ of claim 1, wherein the reconfiguration module supplies a vector representing the optimal configuration determined to the cache ~~programmable~~ memory ~~unit~~.

4. (Currently Amended) The computer system ~~reconfigurable cache memory~~ of claim 1, wherein the reconfiguration module determines the optimal configuration by collecting performance information and analyzing the collected performance information.

5. (Currently Amended) The computer system ~~reconfigurable cache memory~~ of claim 1, wherein the cache ~~programmable~~ memory ~~unit~~, the functional unit, and the reconfiguration unit are combined into a single system.

6. (Currently Amended) A method of reconfiguring cache memory comprising:

determining an optimal configuration of <u>the cache</u> memory for a particular application

executed by a functional unit using ~~a~~ <u>the cache</u> ~~programmable~~ memory ~~unit~~; and

programming the <u>cache</u> ~~programmable~~ memory ~~unit~~ to the optimal configuration.

7. (Currently Amended) The method of claim 6, further comprising:

determining another optimal configuration of <u>the cache</u> memory for another particular

application executed by the functional unit using the <u>cache</u> ~~programmable~~

memory ~~unit~~; and

programming the <u>cache</u> ~~programmable~~ memory ~~unit~~ to the another optimal configuration.

8. (Currently Amended) The method of claim 7, further comprising:

dynamically switching between programming the <u>cache</u> ~~programmable~~ memory ~~unit~~ to

the optimal configuration and the another optimal configuration based on which

application is being executed by the functional unit.

9. (Currently Amended) The method of claim 6, wherein the determining of the optimal

configuration of <u>the cache</u> memory for a particular application executed by a functional unit

using ~~a~~ <u>the cache</u> ~~programmable~~ memory ~~unit~~ comprises:

collecting performance information; and

analyzing the collected performance information.

10. (Currently Amended) The method of claim 6, wherein the programming of the <u>cache</u>

~~programmable~~ memory ~~unit~~ comprises:

creating a vector representing the optimal configuration; and

sending the vector to the <u>cache</u> ~~programmable~~ memory ~~unit~~.

11. (Original) The method of claim 10, wherein a field programmable gate array configuration

generator tool creates the vector.

12. (Currently Amended) A <u>computer system</u> ~~reconfigurable cache memory~~ comprising:

means for determining an optimal configuration of <u>cache</u> memory for a particular

application executed by a functional unit using a <u>cache</u> ~~programmable~~ memory

~~unit~~; and

means for programming the <u>cache</u> ~~programmable~~ memory ~~unit~~ to the optimal

configuration.

13. (Currently Amended) The <u>computer system</u> ~~method~~ of claim <u>12</u>[[6]], further comprising:

means for determining another optimal configuration of <u>cache</u> memory for another

particular application executed by the functional unit using the <u>cache</u>

~~programmable~~ memory ~~unit~~; and

means for programming the <u>cache</u> ~~programmable~~ memory ~~unit~~ to the another optimal

configuration.

14. (Currently Amended) The <u>computer system</u> ~~method~~ of claim <u>13</u>[[7]], further comprising:

means for dynamically switching between programming the <u>cache</u> ~~programmable~~

memory ~~unit~~ to the optimal configuration and the another optimal configuration

based on which application is being executed by the functional unit.

15. (Currently Amended) The <u>computer system</u> ~~method~~ of claim <u>12</u>[[6]], wherein the means for

determining ~~of~~ the optimal configuration of <u>the cache</u> memory for a particular application

executed by a functional unit using a <u>cache</u> ~~programmable~~ memory ~~unit~~ comprises:

means for collecting and analyzing performance information.

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16. (Currently Amended) The computer system method of claim 12[[6]], wherein the means for

programming of the cache programmable-memory unit comprises:

    means for creating a vector representing the optimal configuration and sending the vector

    to the cache programmable memory unit.

17. (Currently Amended) A computer system reconfigurable cache comprising:

    a field-programmable gate array;

    a functional unit in communication with the field-programmable gate array, wherein the

    functional unit executes applications using the field-programmable gate array; and

    a reconfiguration module for determining an optimal configuration of the field-

    programmable gate array memory for a particular application and programming

    the field-programmable gate array to the optimal configuration,

    wherein the reconfiguration module determines the optimal configuration by collecting

    performance information and analyzing the collected performance information.

18. (Currently Amended) The computer system reconfigurable cache of claim 17, wherein the

reconfiguration module supplies a vector representing the optimal configuration determined

to for the field programmable gate array.

19. (Currently Amended) The computer system reconfigurable cache of claim 17, wherein the

field programmable gate array, the functional unit, and the reconfiguration unit are combined

into a single system.

20. (New) The computer system of claim 1, wherein the cache memory is a programmable

memory module.